

Managing Critical Roll Bearing Deterioration

Benefits of Real Time Web Integration with Expert Analysts

Site: Orchids Paper – Pryor, OK
Area: PM – 1
Asset: Suction Pressure Roll and Top Press Roll
Date: May 4th, 2010
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Mill technicians at Orchids Paper suspected that two roll bearings were deteriorating on their most critical paper machine. Relying on Azima DLI's WATCHMAN™ Insight program to provide early warnings on impending machine faults, the Mill technicians collected vibration data from the suction pressure roll and top press roll bearings. The data was then posted to Azima DLI's Reliability Portal for an analyst to review. The Azima DLI vibration analyst reviewing the data confirmed the mill's suspicions and determined that the top press roll had developed a new bearing defect from the drive side roll bearing. The overall vibration level increased from 0.10 ips to 0.35 ips. The spectrum data indicated a bearing defect. Azima DLI recommended that the bearing be replaced during the next scheduled outage. The suction pressure roll had already been reported by Azima DLI as a priority #2 status but further data collection indicated continuing deterioration of the defect developing from the drive side roll bearing. Data collected one month later revealed substantially increased vibration from the bearing. The overall rise was from 0.25 ips to 0.61 ips. The abrupt increase generated a priority #1 status alert that called for the bearing to be replaced immediately. Even though the mill had a prescheduled outage in less than 18 hours, the precipitous increase in vibration demanded a prompt determination of machine health. An Azima DLI analyst received the data, analyzed it, and reported the results within one hour. Despite the rapid deterioration in the bearing, Azima DLI was able to confirm that the mill could continue operating safely through the balance of planned production, avoiding a potentially costly unplanned shut down. Both bearings were replaced during the pre-scheduled outage.

Orchids Paper is a public company that manufactures tissue paper from a single-location in Pryor, OK. The company serves customers in a 500 mile radius of its plant and had 2009 sales of \$96 million representing 54,000 tons of paper. The paper machine where the above fault findings occurred accounts for 7,000 tons of paper per year, equal to 13% of total production or approximately \$12.5 million of revenue. Azima DLI's WATCHMAN Insight program is also in place on additional equipment throughout the mill, providing regular machine health data on critical assets producing 33,000 tons of paper per year representing 61% of total production capacity or approximately \$59 million of revenue.

WATCHMAN Insight is a program that trains mill technicians to collect and send vibration data to Azima DLI analysts via the WATCHMAN Reliability Portal™. Data is collected at Orchids Paper on a monthly basis. Azima DLI has been servicing Orchids Paper mill for the past three years and recently expanded the program to monitor additional critical equipment. When Orchids Paper sought a partner to establish and support a world-class reliability program for its sole location, it chose Azima DLI.

Jacob Schlottman became the lead analyst for Orchids Paper in March 2009. Jacob has been with Azima DLI for 5 years. He provides vibration analysis for many industries including paper, steel, power and industrial gases. He supports WATCHMAN service programs and fan balancing. Jacob is a certified level III vibration analyst through the Vibration Institute.

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Azima DLI is the leader and premier provider of predictive machine condition monitoring and analysis services that align with customers' high standards for reliability, availability and uptime. Azima DLI's WATCHMAN™ Reliability Services utilize flexible deployment models, proven diagnostic software and unmatched analytical expertise to deliver sustainable, scalable and cost-effective condition-based maintenance programs. The company's bundled solutions enable customers to choose comprehensive, proven programs that ensure asset availability and maximize productivity. Azima DLI is headquartered in Woburn, Massachusetts with offices across the U.S. and international representation in Asia-Pacific, Central America, Europe and South America.

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